

STATE OF SOUTH DAKOTA
DEPARTMENT OF TRANSPORTATION

| | | | |
|-----------------------|-----------|-------|--------------|
| STATE OF SOUTH DAKOTA | PROJECT | SHEET | TOTAL SHEETS |
| | 090 E-288 | 1 | 3 |

Plotting Date: 09/08/2022

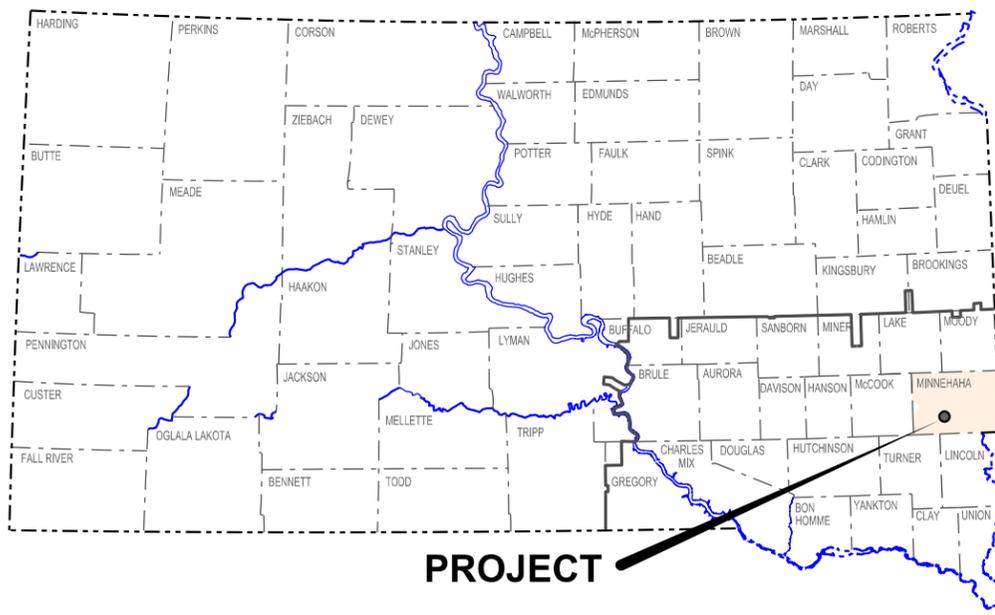
PLANS FOR PROPOSED
PROJECT 090E-288
INTERSTATE 90 EBL
MINNEHAHA COUNTY

PREPURCHASE PRESTRESSED GIRDERS
PCN I6WW

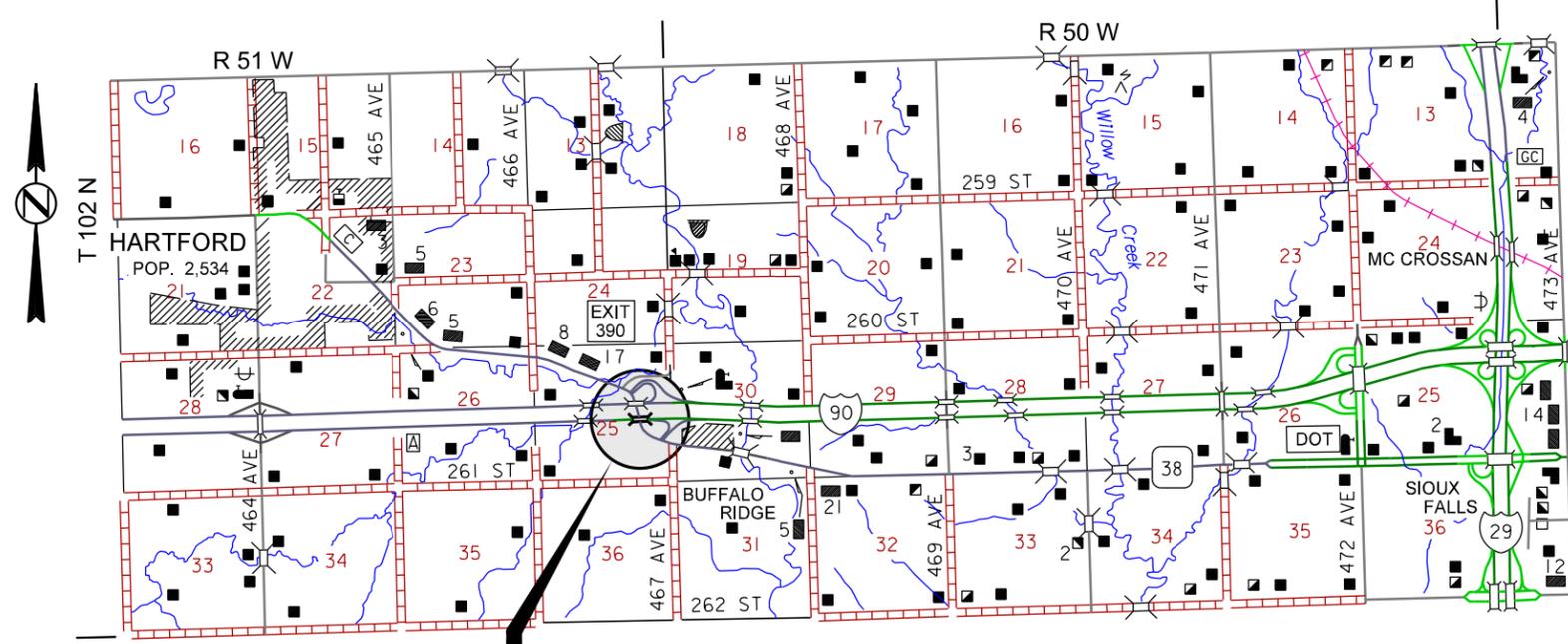
INDEX OF SHEETS

| | |
|---------|---|
| Sheet 1 | Layout Map & Index of Sheets |
| Sheet 2 | Estimate of Quantities |
| Sheet 3 | Girder Details for Structure 50-119-166 |

PLOT SCALE - 1"=7000'



PROJECT



STRUCTURE 50-119-166
Prestressed Girder Bridge
239'-3 1/16"=0.045 Mile
MRM 390.28 EBL

| DESIGN DESIGNATION | | |
|--------------------|--------|--------|
| PROJECT | I90E | SD38 |
| ADT(2021) | 7,610 | 4,197 |
| ADT(2041) | 11,453 | 6,500 |
| DHV | 1,569 | 874 |
| D | 50% | 50% |
| T DHV | 8.6% | 1.9% |
| T ADT | 18.8% | 4.2% |
| V | 80 MPH | 65 MPH |

STORM WATER PERMIT
(None required)

PLOTTED FROM - TRM1INT15

FILE - ... \TITLE\6W.DGN

PLOT NAME - 1

ESTIMATE OF QUANTITIES

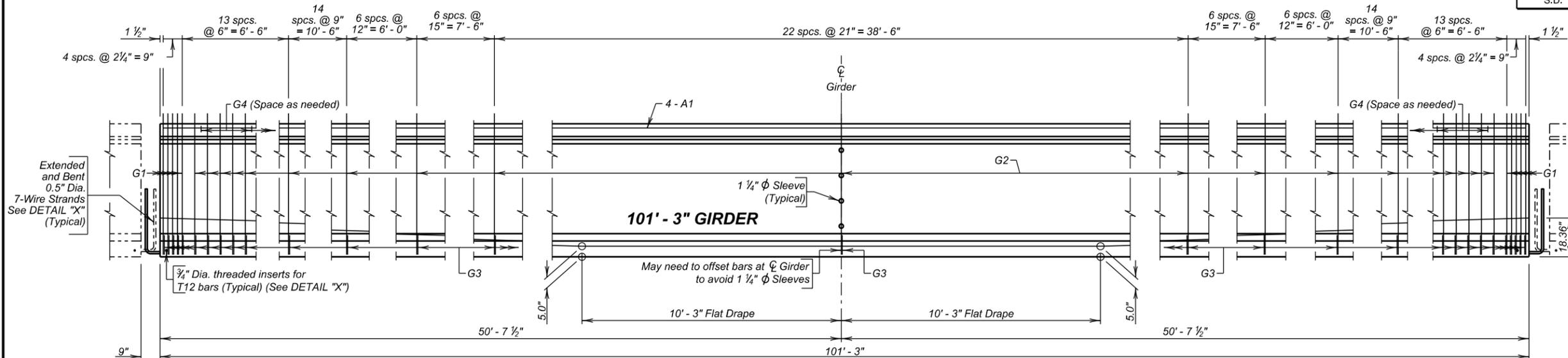
STRUCTURE 50-119-166

| BID ITEM NUMBER | ITEM | QUANTITY | UNIT |
|--------------------|---|----------|------|
| 560E8063 | 63" Minnesota Shape Prestressed Concrete Beam | 203 | Ft |

TAX LIABILITY

The SD Department of Transportation is a South Dakota sales tax-exempt government entity. Therefore, a Certificate of Exemption will be provided to the successful bidding party which excuses the party from paying sales tax on the materials being furnished to the SDDOT. It is the responsibility of bidding parties to contact the SD Department of Revenue @ 1-800-829-9188 to determine tax licensure requirements.

A South Dakota Contractors Excise Tax License is not required for this pre-purchase contract as it is not considered a realty improvement.



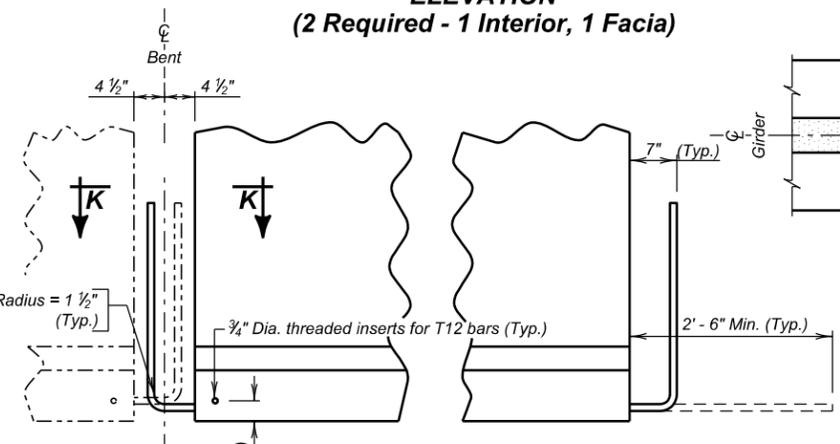
| REINFORCING SCHEDULE (Per Girder) | | | | | |
|-----------------------------------|-----|------|--------|------|-----------------|
| Mk. | No. | Size | Length | Type | Bending Details |
| A1 | 8 | 7 | 52'-3" | Str. | |
| G1 | 10 | 5 | 11'-4" | S11 | |
| G2 | 99 | 4 | 11'-4" | S11 | |
| G3 | 109 | 4 | 4'-10" | S3A | |
| G4 | 59 | 4 | 2'-8" | 17 | |

All dimensions are out to out of bars.

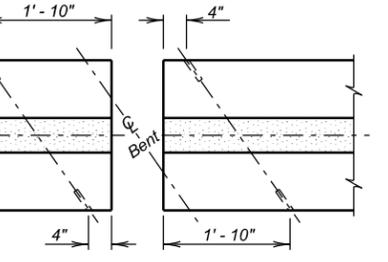
PRESTRESSED GIRDER NOTES

- Construction Specifications: South Dakota Standard Specifications for Roads and Bridges, 2015 Edition and Required Provisions, Supplemental Specifications and Special Provisions as included in the Proposal.
- Minimum concrete compressive strength $f_c = 6000$ psi at 28 days and $f_{ci} = 5000$ psi for all girders.
- All mild reinforcing steel will be deformed bars conforming to ASTM A615, Grade 60. All lap splices shown are contact lap splices unless noted otherwise.
- Individual tendons in all pretensioned sections will consist of seven-wire uncoated Type 270K Strands having a nominal diameter of 0.5-inch and a minimum ultimate strength of 41,300 lbs. per cable. An initial tensile force of 28,910 lbs. will be applied to all 0.5-inch cables in all girders. All prestressing steel will conform to AASHTO M203. (low-relaxation strands).
- All prestressed girders within a span will be cast within an 8-day period. The girders will be poured in all steel forms.
- Prestressed concrete girders will always be lifted by the devices provided in the top flanges near the ends of the girders. Types of lifting devices other than those shown on the plans may be used provided they are approved by the Office of Bridge Design. The design of the lifting devices will be the responsibility of the fabricator.
- Each beam will be marked showing structure number, casting date, and beam number. Marking will be on the face of the beam near the end and the location will be exposed after the diaphragms have been cast. Facia beams will be marked on an inside face. All markings will be stenciled and clearly legible. Both beams are an interior span, one beam is a facia girder.
- The physical properties of the elastomeric bearing pads will conform to the requirements of Section 18.2 of the AASHTO LFRD Bridge Construction Specification and the AASHTO Materials Specification M251. The elastomeric bearing pads will conform to Grade 70 (durometer). The cost of the pads will be incidental to the contract unit price per foot for 63" Minnesota Shape Prestressed Concrete Beam. Certification that pads are 70 durometer and meet the requirements of AASHTO LFRD Bridge Construction Specification Section 18.2 and AASHTO Materials Specification M251 will be furnished to the Engineer with the shop drawings. No laminated bearing pads will be allowed.
- All exposed corners will be chamfered 3/4-inch or rounded to 3/4-inch radius.
- Dead Load of girder taken as effective at transfer. Cut strands flush with end of girder and coat end of strands with mortar, EXCEPT the strands that are to be extended and bent.
- The Contractor will be responsible for ensuring that transportation stresses, handling, and erection do not cause damage to the girders.
- Furnish and Install Inserts for T12 bars as shown in the plans. All costs involved will be incidental to the contract unit price per foot of 63" Minnesota Shape Prestressed Concrete Beam.

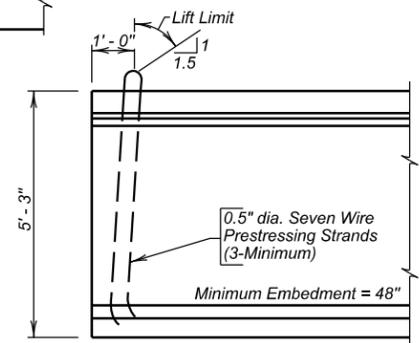
ELEVATION
(2 Required - 1 Interior, 1 Facia)



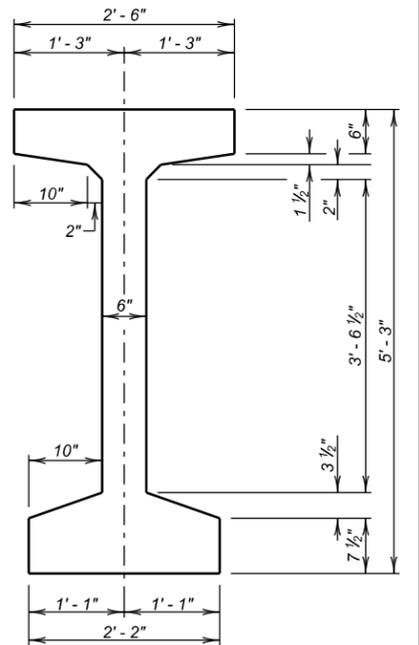
DETAIL "X"



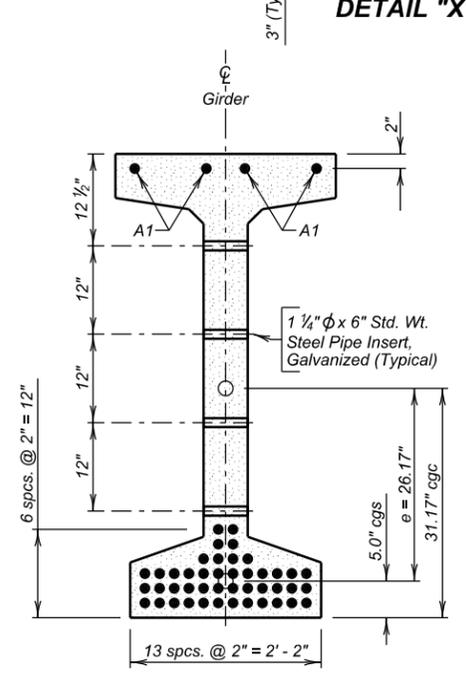
SECTION K - K



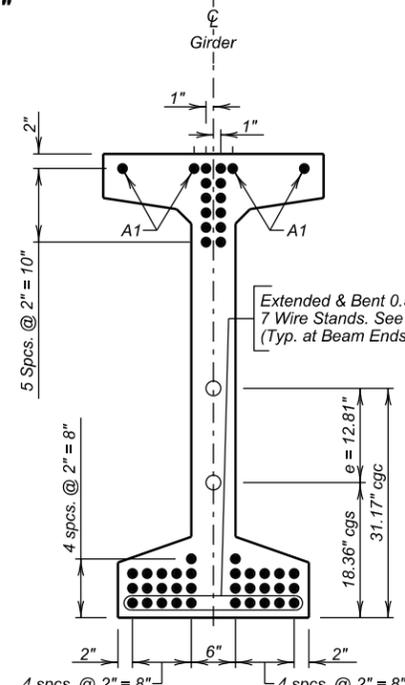
TYPICAL LIFTING DEVICE



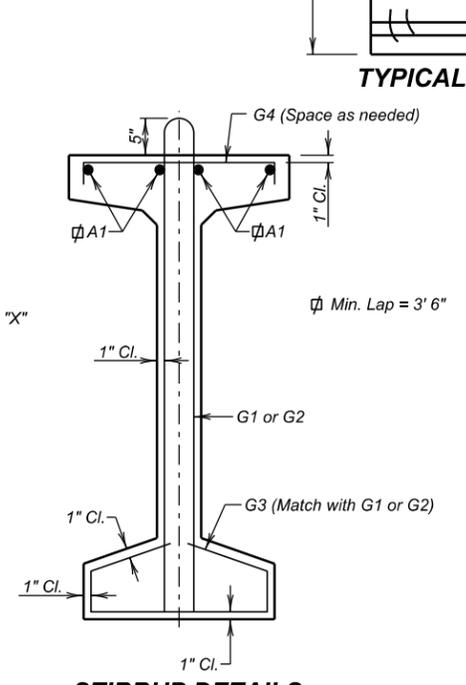
TYPE 63 GIRDER



ε SECTION



END VIEW



STIRRUP DETAILS

101' - 3" GIRDER
(44' - 0 1/2" Dia. Type 270k Strands)

| ESTIMATED QUANTITIES | | |
|---|------|----------|
| ITEM | UNIT | QUANTITY |
| 63" Minnesota Shape Prestressed Concrete Beam | Ft | 203 |

101' - 3" GIRDER DETAILS FOR
239' - 3 1/16" PRESTR. GIRDER BRIDGE REPAIR
 40' - 0" ROADWAY
 OVER S.D. HWY. NO. 38
 STR. NO. 50-119-166
 PCN I6WW

35° R.H.F. SKEW
 SEC. 25-T102N-R51W
 090 E-288
 HS 20 - 44

MINNEHAHA COUNTY
 S. D. DEPT. OF TRANSPORTATION

SEPTEMBER 2022

| | | | |
|--------------------------------|--------------------------------|------------------|---------------------|
| DESIGNED BY TJM MINNIGWW | CK. DES. BY JKI I6WWRA01 | DRAFTED BY KR | BRIDGE ENGINEER |
|--------------------------------|--------------------------------|------------------|---------------------|